

IN THE DRAWINGS

The attached sheets of drawings include changes to Figs. 1-5. These sheets, which include Figs. 1-5, replace the original sheets including Figs. 1-5.

Attachment: Replacement Sheets

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 19-36 are currently pending. Claims 19 and 29 have been amended by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.¹

In the outstanding Office Action, the drawings were objected to as containing informalities; the specification was objected to as containing an informality; Claims 19, 20, 24, 25, 27-30, and 34 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0059241 to Suffin; Claims 21-23, 26, and 31-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Suffin in view of “Comparison of Hilbert Transform and Wavelet Methods for the Analysis of Neuronal Synchrony” by Le Van Quyen et al. (hereinafter “Le Van Quyen”); Claim 35 was rejected under 35 U.S.C. §103(a) as being unpatentable over Suffin in view of U.S. Patent Application Publication No. 2001/0044573 to Manoli et al. (hereinafter “Manoli”); and Claim 36 was rejected under 35 U.S.C. §103(a) as being unpatentable over Suffin in view of U.S. Patent Application Publication No. 2003/0004428 to Pless et al. (hereinafter “Pless”).

OBJECTION TO DRAWINGS

Regarding the objections to the drawings, Applicants submit the attached new corrected drawings, including Figures 1-5, to address the objections by the Draftsperson under 37 C.F.R. §1.84, referenced in the Office Action. Accordingly, the objections to the drawings are believed to have been overcome.

¹ See, e.g., page 11, lines 11-14 and page 12, lines 7-21 of the originally filed specification.

OBJECTION TO SPECIFICATION

Regarding the objection to the specification, the recited “PSC method” disclosed at page 11, lines 25 and 26 of the originally filed specification has been amended to recite “MSC method,” as suggested in the Office Action. Accordingly, the objection to the specification is believed to have been overcome.

Further, the specification has been amended to refer to Figures 3A and 3B, rather than Figure 3, in view of the attached new corrected drawings.

REJECTION UNDER 35 U.S.C. §102

Amended Claim 19 is directed to a method of a real time medical or cognitive monitoring device for analyzing synchronizations of electroencephalography of an individual using a set of sensors starting from cerebral electromagnetic analysis of the individual, comprising:

creating a database comprising:

acquisition and digitization of
electrophysiological signals output from the sensors,

calculating a correlation of phase variations
between all pairs of sensors recorded in an assembly
protocol, in frequency bands between 0 and 2000 Hz, to
build up the database of classes each characterizing a
reference state of cerebral electromagnetic activity of
said individual;

statistical validation, by the real time medical or
cognitive monitoring device, of a period analyzed in real time,
which assigns the period to a class in the database; and

detecting, by the real time medical or cognitive
monitoring device, a specific period with a determined degree
of synchronization.

Regarding the rejection of Claim 19 under 35 U.S.C. §102(e), Suffin is directed to a method for classifying and treating physiologic brain imbalances using quantitative EEG. In

particular, the Office Action appears to cite the Suffin division of the QEEG spectrum into four frequency bands, which include results from each of the EEG electrodes represented as quantitative output measurements for each frequency band including coherence (the measure of synchronization between activity and two channels), for teaching “calculating a degree of synchronization existing between all pairs of sensors recorded in an assembly protocol ([0062]) in frequency bands between 0 and 2000 Hz ([0062])”; the Suffin collecting of EEG/QEEG information for teaching “to build up a database of classes each characterizing a reference state ([0124]-[0126])”; and the Suffin Z scores and electronic transmission of information to a secure analysis site for teaching “statistical validation of a period analyzed in real time ([0069]), which assigns the period to a class in the database ([0117]).”²

However, it is respectfully submitted that Suffin fails to disclose calculating a correlation of phase variations between all pairs of sensors recorded in an assembly protocol, in frequency bands between 0 and 2000 Hz, to build up the database of classes each characterizing a reference state of cerebral electromagnetic activity of said individual.

Rather, Suffin discusses that the cited “coherence” of the EEG signal measures the similarity of activity for signals extracted by different electrodes for each of the defined frequency bands.³ This is consistent with Le Van Quyen, which defines coherence as a measure of spectral covariance and thus does not separate the effects of amplitude and phase in the interrelations between two signals.⁴ As explained by Le Van Quyen, coherence is not the same thing as “synchronization” (i.e., correlation of phase variations), which is a direct measurement of phase locking. Thus, Suffin does not disclose *calculating a correlation of phase variations between all pairs of sensors recorded in an assembly protocol.*

Further, as noted in the Office Action, Suffin discusses constructing a neurometric database from the QEEGs of a set of individuals forming a reference **asymptomatic**

² See Office Action dated January 23, 2009, page 3.

³ See Suffin, paragraph [0127].

⁴ See Le van quyen, page 84, left column.

population.⁵ In Suffin, **the individual patient whose electrophysiological signals are analyzed does not belong to said population**. Thus, Suffin does not disclose creating a *database of classes each characterizing a reference state of cerebral electromagnetic activity of said individual*.

Moreover, it is respectfully submitted that Suffin fails to disclose statistical validation, by the real time medical or cognitive monitoring device, of a period analyzed in real time, which assigns the period to a class in the database. Rather, as cited in the Office Action, the ‘241 application discusses performing **off-line** analysis of QEEG signals.⁶ Thus, Suffin does not disclose performing *statistical validation of a period analyzed in real time*. For a non-limiting example, it is noted that statistical validation **in real time** is essential to a number of applications which are not considered by Suffin, such as seizure anticipation or cognitive fatigue detection, e.g., of a pilot.

Accordingly, it is respectfully submitted that Claim 19 (and all associated dependent claims) patentably defines over Suffin.

Amended Claim 29 recites, in part,

means for calculating correlation of phase variations between all pairs of sensors recorded in an assembly process, in frequency bands between 0 and 2000 Hz, to build up a database of classes each characterizing a reference state of cerebral electromagnetic activity of said individual; [and]

means for statistically validating a period analyzed in real time to assign the period to a class in the database.

As noted above, Suffin fails to disclose the “calculating” and “statistical validation” recited in Claim 19. Thus, Suffin fails to disclose the “means for calculating” and the “means for statistically validating” of Claim 29. Accordingly, it is respectfully submitted that Claim 29 (and all associated dependent claims) patentably defines over Suffin.

⁵See Suffin, paragraph [0069].

⁶ See Suffin, paragraphs [0116]-[0119], and more particularly paragraph [0117].

REJECTION UNDER 35 U.S.C. §103

Regarding the rejection of dependent Claims 21-23, 26, and 31-33 under 35 U.S.C. §103(a), it is respectfully submitted that Le Van Quyen fails to remedy the deficiencies of Suffin, as discussed above. Accordingly, it is respectfully submitted that dependent Claims 21-23, 26, and 31-33 patentably define over any proper combination of Suffin and Le Van Quyen.

Regarding the rejection of Claim 35 under 35 U.S.C. §103(a), it is respectfully submitted that Manoli fails to remedy the deficiencies of Suffin, as discussed above. Accordingly, it is respectfully submitted that dependent Claim 35 patentably defines over any proper combination of Suffin and Manoli.

Regarding the rejection of Claim 36 under 35 U.S.C. §103(a), it is respectfully submitted that Pless fails to remedy the deficiencies of Suffin, as discussed above. Accordingly, it is respectfully submitted that dependent Claim 36 patentably defines over any proper combination of Suffin and Pless.

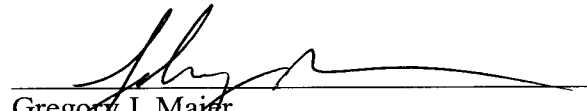
CONCLUSION

Thus, it is respectfully submitted that independent Claims 19 and 29 (and all associated dependent claims) patentably define over any proper combination of Suffin, Le Van Quyen, Manoli, and Pless.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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